CLAIMS

1. A current mirror comprising:

a first transistor of a first conductivity type, the first transistor being diode-connected;

a second transistor of a second conductivity type, a drain of the second transistor being connected to a drain of the first transistor, and a gate of the second transistor being connected to a source of the first transistor;

a third transistor of the first conductivity type, a gate of the third transistor being connected to a gate of the first transistor; and

a fourth transistor of the first conductivity type, a gate of the fourth transistor being connected to a source of the second transistor.

2. The current mirror of Claim 1, further comprising a current source connected to the source of the second transistor.

3. The current mirror of Claim 1, wherein the first transistor, the second transistor, the third transistor, and the fourth transistor are matched transistors.

4. The current mirror of Claim 1, wherein the first transistor, the third transistor, and the fourth transistor comprise n-type metal-oxide-semiconductor (NMOS) transistors, and

wherein the second transistor comprises a p-type metal-oxide-semiconductor (PMOS) transistor.

5. The current mirror of Claim 4, wherein the current source, the second transistor, and the first transistor are connected in series between a first supply voltage and a second supply voltage, and

wherein the fourth transistor and the third transistor are connected in series between an output terminal and the second supply voltage.

6. The current mirror of Claim 1, wherein the first transistor, the third transistor, and the fourth transistor comprise p-type metal-oxide-semiconductor (PMOS) transistors, and

wherein the second transistor comprises an n-type metal-oxide-semiconductor (NMOS) transistor.

7. The current mirror of Claim 6, wherein the first transistor, the second transistor, and the current source are connected in series between a first supply voltage and a second supply voltage, and

wherein the third transistor and the fourth transistor are connected in series between the first supply voltage and an output terminal.

8. A method for generating an output current, the method comprising:

providing a reference current to a diode-connected transistor via a saturated transistor, wherein the diode-connected transistor and the saturated transistor have different conductivity types;

providing a gate voltage of the diode-connected transistor to a mirroring transistor to generate an output current;

providing the output current to an output terminal via an output transistor; and

providing a source voltage of the saturated transistor to a gate of the output transistor.

9. The method of Claim 8, wherein the diode-connected transistor, the saturated transistor, the mirroring transistor, and the output transistor are all matched transistors.

10. The method of Claim 8, wherein the diode-connected transistor, the mirroring transistor, and the output transistor comprise n-type metal-oxide-semiconductor (NMOS) transistors, and

wherein the saturated transistor comprises a p-type metal-oxide-semiconductor (PMOS) transistor.

11. The method of Claim 10, wherein providing the reference current to the diode-connected transistor via the saturated transistor comprises:

providing a current source, the saturated transistor, and the diode-connected transistor in series between a first supply voltage and a second supply voltage; and

providing the second supply voltage to a gate of the saturated transistor.

12. The method of Claim 8, wherein the diode-connected transistor, the mirroring transistor, and the output transistor comprise p-type metal-oxide-semiconductor (PMOS) transistors, and

wherein the saturated transistor comprises an n-type metal-oxide-semiconductor (NMOS) transistor.

13. The method of Claim 12, wherein providing the reference current to the diode-connected transistor via the saturated transistor comprises:

providing the diode-connected transistor, the saturated transistor, and a current source in series between a first supply voltage and a second supply voltage; and

providing the first supply voltage to a gate of the saturated transistor.

14. A method for providing an output current, the method comprising:

cascoding a first transistor and a second transistor between an output terminal and a first supply voltage;

supplying a reference current to a third transistor via a fourth transistor, the third transistor being diode-connected, the third transistor and the fourth transistor having different conductivity types;

providing the first supply voltage to a gate of the fourth transistor;

providing a gate voltage of the third transistor to a gate of the second transistor; and

providing a source voltage of the fourth transistor to a gate of the first transistor.

15. The method of Claim 14, wherein the first transistor, the second transistor, the third transistor, and the fourth transistor comprise matched transistors.

16. The method of Claim 14, wherein the second transistor, the third transistor, and the fourth transistor comprise n-type metal-oxide-semiconductor (NMOS) transistors, and

wherein the first transistor comprises a p-type metal-oxide-semiconductor (PMOS) transistor.

17. The method of Claim 14, wherein the second transistor, the third transistor, and the fourth transistor comprise P-type metal-oxide-semiconductor (PMOS) transistors, and

wherein the first transistor comprises an n-type metal-oxide-semiconductor (NMOS) transistor.